

What is claimed is:

1. A concrete screed for smoothing an uncured concrete surface comprising:
a screed plate having first and second opposite ends, a leading edge, a trailing edge, and a
flat bottom surface, the screed plate being elongated and having a longitudinal
screed plate axis, the bottom surface being adapted to rest on the uncured concrete
surface;
- 5 a vibrator mounted on the screed plate and being capable of actuation to cause vibration of
the screed plate;
- a pivot member pivotally mounted to the screed plate for pivotal movement about a
10 horizontal pivot axis extending in the same general direction of the longitudinal
screed plate axis;
- a first handle and a second handle each having an attachment end mounted to the pivot
member, the first and second handles each having a gripping end opposite from the
attachment end for gripping the handles;
- 15 a tilt actuator connected to both the pivot member and the screed plate, the tilt actuator
being capable of actuation to cause the pivot member and the screed plate to rotate
relative to one another about the horizontal pivot axis.

2. The concrete screed according to claim 1 wherein the first and second handles
20 prevent rotation of the pivot member about the horizontal pivot axis when the gripping
ends of the first and second handles are held at a constant height above the concrete
surface, the tilt actuator causing the screed plate to pivot about the horizontal pivot axis
relative to the pivot member during actuation of the tilt actuator.
- 25 3. The concrete screed according to claim 2 and further comprising a height detector
attached to the screed plate and being electrically connected to the tilt actuator for actuating
the tilt actuator, the height detector being capable of sensing the height of the concrete
surface relative to a fixed horizontal height, the height detector actuating the tilt actuator in
response to sensing when the concrete surface is either above or below a predetermined
30 distance from the fixed horizontal height .

4. The concrete screed according to claim 3 and further comprising a laser beam extending horizontally at the fixed height, the height detector being capable of receiving the laser beam and calculating the distance of the laser beam from the concrete surface.

5 5. The concrete screed according to claim 1 wherein the tilt actuator comprises first and second actuator members that are longitudinally extensible with respect to one another when the tilt actuator is actuated.

10 6. The concrete screed according to claim 1 wherein the first and second handles are pivotally mounted to the pivot member for pivotal movement about first and second axes that are perpendicular to the horizontal pivot axis of the pivot member.

15 7. A concrete screed adapted to react automatically relative to a horizontal laser beam of fixed height above an uncured concrete surface, the screed comprising:
a screed plate having first and second opposite ends, a leading edge, a trailing edge, and a flat bottom surface, the screed plate being elongated and having a longitudinal screed plate axis, the bottom surface of the screed plate resting on the uncured concrete surface;

20 a vibrator mounted on the screed plate and being capable of actuation to cause vibration of the screed plate;

a pivot member pivotally mounted to the screed plate for pivotal movement about a horizontal pivot axis extending in the same general direction of the longitudinal screed plate axis;

25 a first handle and a second handle each having a first handle end connected to the pivot member, the first and second handles each having a gripping end opposite from the attachment end for gripping the handles;

the first and second handles being attached to the connecting member in such a way that when the gripping ends of either or the first and second handles are held at a constant height they hold the pivot member against tilting movement about the horizontal pivot axis and the screed plate can tilt relative to the pivot member about the horizontal pivot axis;

a laser beam detector on the screed plate for detecting whether or not the laser beam detector is above or below the horizontal laser beam;

a tilt actuator electrically connected to the laser beam detector and being mechanically connected to both the screed plate and the pivot member;

5 the tilt actuator causing the screed plate to tilt about the horizontal axis in a first direction in response to the laser beam detector sensing that the laser beam detector is below the horizontal laser beam and tilting the screed plate about the horizontal axis in a second direction opposite from the first direction in response to the laser beam detector sensing that the laser beam detector is above the horizontal laser beam.

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8. The concrete screed according to claim 7 wherein the first and second handles are pivotally mounted to the pivot member for pivotal movement about first and second axes, both of which are perpendicular to the horizontal pivot axis of the pivot member.

15 9. A method for using a concrete screed to finish an uncured concrete surface comprising:

taking a screed plate having a bottom surface resting on the concrete surface, a pivot member pivotally mounted to the screed plate for pivotal movement about a horizontal pivot axis, and a pair of handles each having an attachment end attached

20 to the pivot member and a gripping end for gripping by an operator;

sensing the distance of the screed plate resting on the concrete surface from a fixed horizontal height;

tilting the screed plate about the horizontal pivot axis in response to the sensed distance of the screed plate from the fixed horizontal height being either above or below a
25 predetermined distance.

10. The method according to claim 9 and further comprising tilting the screed plate in a first direction about the horizontal pivot axis in response to the sensed distance being above the predetermined distance and tilting the screed plate in a second direction opposite from
30 the first direction about the horizontal pivot axis in response to the sensed distance being below the predetermined distance.

11. The method according to claim 9 and further comprising holding the gripping ends of the first and second handles at a constant height above the surface of the concrete during the sensing and tilting steps to hold the pivot member against pivotal movement about the
5 horizontal pivot axis during the sensing and tilting steps.

12. The method according to claim 11 wherein the first and second handles are pivotally mounted to the pivot member for pivotal movement about first and second axes perpendicular to the horizontal pivot axis of the pivot member, the method comprising
10 pivoting the first and second handles about the first and second axes while holding the pivot member against pivotal movement about the horizontal pivot axis.